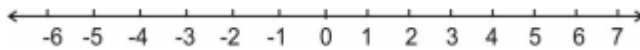## CHAPTER – 1

NUMBER SYSTEMS

1. Rational Numbers
2. Irrational Numbers
3. Real Numbers and their Decimal Expansions
4. Operations on Real Numbers
5. Laws of Exponents for Real Numbers

- Natural numbers are - 1, 2, 3, ... denoted by N.
- Whole numbers are -   0, 1, 2, 3, ... denoted by W.
- Integers - .... -3, -2, -1, 0, 1, 2, 3, ... denoted by Z.
- Rational numbers - All the numbers which can be written in the form $r/s \ p/q,$ are called rational numbers where p and q are integers.
- Irrational numbers - A number s is called irrational, if it cannot be written in the form p/q where p and q are integers and
- The decimal expansion of a rational number is either terminating or non-terminating recurring. Thus we say that a number whose decimal expansion is either terminating or non-terminating recurring is a rational number.
- The decimal expansion of a irrational number is non terminating non-recurring.
- All the rational numbers and irrational numbers taken together.
- Make a collection of real number.
- A real no is either rational or irrational.
- If r is rational and s is irrational then r+s, r–s, r.s are always irrational numbers but r/s may be rational or irrational.
- Every irrational number can be represented on a number line using Pythagoras theorem.
- Rationalization means to remove square root from the denominator.
  $\dfrac{3+\sqrt{}}{\sqrt{2}}$ to remove we will multiply both numerator & denominator by $\sqrt{2}$ $\dfrac{}{a \pm \sqrt{b}}$ its rationalization factor $a \mp \sqrt{b}$